



VOLUME 57 ISSUE 06

June 2007

2007 Dayton Hamvention

Dayton Hamvention 2007 has come and gone and we had great weather this year, not very hot and NO rain!



Vendors, Vendors...

All of the major vendors set up shop and the flea market was very busy with one man's junk just waiting to become someone else's gold. There were several good traffic forums and the rooms were packed. Jim ABØUK and I handed out 500 flyers for the Colorado QSO Party at the contest



...and more VENDORS

forums. Total attendance seemed to be slightly up this year, but we'll have to wait for DARA to put out the numbers.

Lots of radios and electronics traded hands, so money flowed at Hamvention and the gas pumps. Many flea market vendors packed up and left Saturday evening because they had sold everything that they had brought!

Hams from Canada, South America, Mexico, Alaska, Japan, Russia, Germany, Austria, Kuwait, and many other countries attended. The Colorado Springs contingent included Jim ABØUK, David Harris, Dave WA6IFI, Shel KFØUR, and Cliff NØZUQ and I'm quite sure other hams from Colorado Springs were there, but I was too busy looking at equipment to see them.



ARRL EXPO

If you have not attended in the past, consider putting the Dayton Hamvention on your calendar for next year; it is well worth the time and effort. After all, more 20,000 other forward-looking hams cannot be wrong!

See you May 16, 17 &18, 2008 in Dayton!

73,
Dave NØEOP

FIELD DAY

June 23-24, 2007



This year Field Day falls on the weekend of June 23-24 starting at 1200 on Saturday running until 1200 Sunday. The Tri-Lakes #1 Fire Station in Monument is hosting this year's Field Day and this year's activities are different. We have integrated family activities into Saturday's operation with a metal detector treasure hunt, horseshoes, and croquet. For talk-in, tune to 146.58 MHz simplex.



To get to the site, go North on I-25 to exit 161, turn left at the first traffic light (Hwy 105) and proceed West across the I-25 overpass to the first traffic light and turn right (North). You will be on

Hwy 105. Go a mile or so down the road just past a railroad overpass on the right to the fire station at 18650 Hwy 105.

Several of us will be going up Friday between 10am and noon for early setup. All stations are scheduled: SSB, CW, Digital, VHF/UHF, and GOTA.

I need assistance with the following:

- ✚ Food/soft drink purchasing and transport to the FD site.
- ✚ Ice chests (We have limited access to a refrigerator/freezer).
- ✚ Securing/transporting eating supplies. I have:
 - ✓ 2 containers with many of these items:
 - paper plates
 - drinking cups
 - coffee makers
 - pots/pans/cooking utensils
 - ✓ 2 cooking grills in case our gas grill fails
 - ✓ 2 bags Charcoal and starter
 - ✓ Folding tables/chairs for eating/visiting.
 - ✓ 2-3 tarps to shelter cooking/eating area.
 - ✓ Tents (2-6 man) for back up operating sites in case the room is required for an emergency.

If you would like to help, please let me know. I'll see you there.

73

Mike WV7T

NONPROFIT STATUS

The PPRAA is a federal 501(c)(3) nonprofit organization, and welcomes all contributions. Your contributions or donations may be tax-deductible.



Colorado QSO Party!

1200Z July 15—0400Z July 16, 2007

www.ppraa.org/coqp

The time is rapidly approaching for the Colorado QSO Party. It is from 1200 UTC 15 July 2007 until 0400 UTC 16 July 2007 (6AM to 10PM MDT). Interest is really picking up from numerous individuals and several groups throughout Colorado and the USA. We have handed out a thousand flyers at local hamfests and businesses and at the County Hunters and Contesting forums at the Dayton Hamvention. We have sponsors for 40 plaques and about half of the Colorado counties have coverage at this writing. The COQP website is at <http://www.ppraa.org/coqp> where you will find all the details of sponsoring a plaque, covering a county, logging software and submitting logs. Sponsor a plaque by yourself or club together and sponsor a plaque as a group.

We encourage everyone to tell all your amateur radio friends about the COQP and to consider sponsoring a plaque (only \$30) and/or covering one or more counties. Please let us know about sponsoring a plaque or county coverage at coqinfo@ppraa.org.

73,
Jim Harris ABØUK

Ø-BEAT DEADLINE

The deadline for the July 2007 Ø-Beat is June 25th. Send all submissions to the editor via e-mail, US Mail, telephone or in person. Please feel free to submit an article, joke or news – we need your fresh content!

Contact: Jackie Cornwell ACØCA
PH: 719-632-8254
Email: zerobeat@ppraa.org
USPS: 2406 W. Kiowa St.
Colo Spgs CO 80904

MEGAFEST

June 9, 2007

Megafest is here:

- 0800 to 1300
- Vendors 0600
- Ticket sales 0730

Lewis-Palmer High School
1300 Higby Road, Monument, CO
Just East of I-25, between Exits 158 & 161

Admission: \$5.00

Grand Prize:

YAESU FT-857D

Rugged HF/VHF/UHF Portable Transceiver

Second Prize:

ICOM IC-718

Compact All Mode HF Transceiver

Generously donated by Cheyenne Mountain Repeater Group, Inc

Third Prize:

YAESU VX-6R

Tri Band 144/220/440 Handheld Transceiver

Come for the big prizes, but stay for the rest:

- ARES & MARS forums
- VE testing
- Door prizes
- Vendors

Doors open at 8 a.m. Raffle tickets still available until 12:00 p.m. Talk-in on 146.97 or 146.52.

We still need volunteers to help with admissions, raffle ticket sales, table sales, table setup, etc. Share a little of your time to make Megafest a winner for everyone. Thank you to everyone who has helped so far!

Rob Roller N7LV
Megafest Chairman

KUDOS to YAESU

Jeff KCØSXV

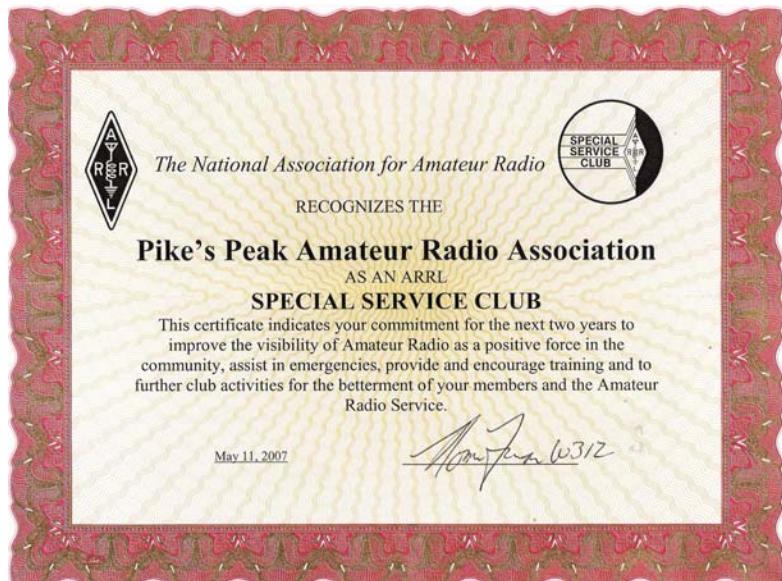
I called Yaesu (Vertex Standard) on May 21, 2007 to order a replacement part for my VX-5RS. On May 24, 2007 I called back to do a check-up on my order since no money had been withdrawn from my out of my bank account by that time. Yaesu's customer service explained they processed the order the day before and the part was already in the mail. The total was a little more than \$8.00; shipping cost much more than the part.

A little later, I received another phone call from Yaesu. Since the part only cost \$1.87, they sent it free of charge. Now that is what I call unbeatable service.

Jeff Hagain
KCØSXV

DITS & BITS

Thanks to the efforts of Christopher, NC6T, PPRAA is again an ARRL Special Service Club.



PPRAA MEETING INFORMATION

The Pikes Peak Radio Amateur Assn meets monthly at 7 PM on the 2nd Wednesday of each month at the El Paso County Health Department Auditorium, 305 S. Union Blvd, downstairs at the apex of the two buildings. For a map, please visit our web site at www.qsl.net/ppraa/ or contact any of the board members for more information.

AMATEUR RADIO LICENSE EXAMINATIONS

The PPRAA/VE team holds testing sessions at 9 AM at the Colorado Technical University, 4435 North Chestnut (just west of I-25 and just south of Garden of the Gods Rd).

Exam fee: \$14.00 for Elements 2, 3, and/or 4, payable to ARRL/VEC.
No same-day retakes of same element. Walk-ins allowed; pre-registration not necessary.

BRING: Photo ID, original **and** copy of valid ham license and/or valid CSCE, and FRN for licensed hams.

Contact: Dennis Major NØABC at 719-531-6774 or email

Online: ppraa.org or arrl.org.

Mark your calendars:

Jun 9*, Aug. 11, Oct. 13, Dec. 8

*10:00 AM at PPRAA Megafest, Lewis-Palmer HS, Monument, CO

The Art of DXing

Dave AA6YQ

HRD [Ham Radio Deluxe] and Logger32 are both good applications. I work occasionally with Simon and sporadically with Bob, and respect them both as software engineers.

DXLab focuses on support for the DXer. Its goal is to package a lot of capability in an intuitively useable way, complemented by a strong user community, pop-up explanations, reference documentation, and task-oriented documentation. It's thus been attractive to the broader set of general-purpose users as well as to casual contesters.

In its quest for usability, DXLab applications forgo the classic menu bar for a more graphical orientation. This approach makes functionality easier to find and use, but consumes more screen space.

DXLab is not appropriate for the serious contest, nor is it designed to support remote operation. There is no satellite tracker, so Logger32 or HRD would be better choices if that's a "must-have".

The process by which applications in the DXLab Suite are developed is iterative, meaning that releases are frequent and typically driven by suggestions from the user community. The DXLab Launcher's automation has reduced both initial installation and upgrades to a single mouse click, and provides a central control point for the Suite's applications. My goal is to correct all defects within 24 hours, but I am out of compliance on 2 or 3 at this instant.

Particular strengths include:

- ❖ SpotCollector's ability to capture DX spots from up to 6 sources, creating and maintaining a local database with one entry for each active DX station that is color coded by *need* and LotW participation, and whose entries can be comprehensively filtered at the click of a mouse

- ❖ SpotCollector's ability to capture solar and geomagnetic data from WWV spots, in combination with PropView's use of that data to provide easy-to-understand point-and-click propagation forecasts and DXView's use of that data to depict the auroral oval on its world map
- ❖ PropView's ability to capture custom NCDXF/IARU HF beacon schedules to rapidly calibrate its propagation forecasts with actual propagation
- ❖ WinWarbler's ability to decode all PSK31 or PSK63 QSOs within your transceiver's band pass and extract call signs to create and maintain a "stations heard" window
- ❖ WinWarbler's ability to simultaneously run soundcard RTTY (using the MMTTY engine) and an external modem (e.g. a KAM or PK232), providing diversity decoding or the ability to simultaneously decode a DX station and callers
- ❖ WinWarbler's support for PSK, RTTY, CW (generation only), and Phone (voice keying) with a single user interface and macro facility
- ❖ DXKeeper's support for operations that modify many logged QSOs simultaneously without requiring the user to edit ADIF files, e.g., performing call book updates on already-logged QSOs, or adjusting the QSO times of QSOs logged during a specific time range, or extracting QTH information from COMMENT fields, or...
- ❖ DXKeeper's ability to synchronize with LotW and eQSL.cc, initiating upload and download operations with a single mouse click
- ❖ DXKeeper's ability to directly print QSL labels and 4-up QSL cards, and print addresses on envelopes or labels.
- ❖ DXKeeper's ability to track confirmation and verification of QSOs for DXCC and TopList awards, enabling it to direct SpotCollector's coloring of DX spots, generate outgoing QSL cards that request confirmation of needed QSLs, identify confirmed QSOs for submission to the ARRL DXCC desk, and generate DXCC submission paperwork

Cont'd next page...

Cont'd...

- ❖ DXKeeper's ability to extract address information from all 3 CD-ROM call books and QRZ.com
- ❖ Commander's ability to display frequency-dependent settings for devices like tuners and amplifiers, its support for up to four (4) transceivers with selection accomplished by mouse click or automatically as a function of frequency, its support for transverters, and its provision of a zoomable band spread that displays DX spots
- ❖ DXView's support for all known PC-controllable rotators, and its comprehensive support for calculating and visualizing greyline openings
- ❖ Pathfinder's ability to make more than 100 web-accessible sources of QSL information accessible via a few mouse clicks
- ❖ DXLab's open interfaces that enable inter-operation with MultiPSK, MMSSTV, MMVARi, MixW, DX Atlas, and HRD

Go to www.dxlabsuite.com/ for additional information or to download the programs members.

73,
Dave, AA6YQ

I have been using DXLabs Suite for about four (4) months and really enjoy them. One feature that I really like is that they are FREE!

**TNX & 73,
Dave NØEOP**

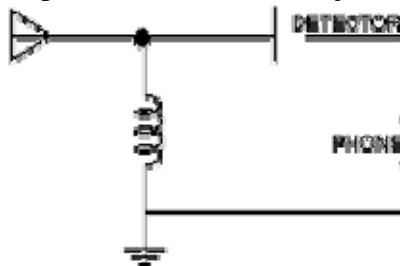
SILENT KEY
Will Zimmerman

On February 18, 2007, Will Zimmerman NØHRD of St. Petersburg, FL became a Silent Key.

IN OTHER WORDS...

As promised last month, I will conclude the article on foxhole radios.

The simplest of these wartime sets didn't include a slider/tuner arm, and were therefore capable of only tuning in one frequency. An article appeared in a 1944 issue of QST, and is faithfully reproduced in the [D J Adamson Collection](http://members.aol.com/djadamson/index.html) (<http://members.aol.com/djadamson/index.html>).

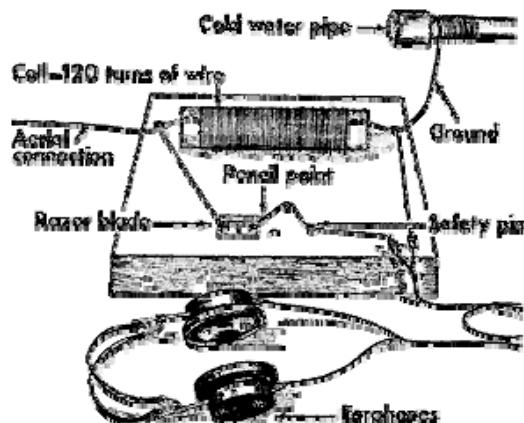


The design was very simple. The coil was 120 turns around a 2" toilet paper tube and the whole assembly

fastened to a board. Pencil lead wasn't available so the point of the safety pin directly contacted the razor blade. Without a tuner, only one signal could be received and only if a nearby station broadcast on the correct frequency. It was clearly a hit-and-miss operation.

This is from the article, "How to Build a Foxhole Radio," from *All About Radio and Television* by Jack Gould, Random House, 1958.

The illustrations are by Bette Davis (the one who didn't announce a "...bumpy night"). The book is long since out of print, and too dated for most libraries to hold a copy. It is a simple set, but does not include a slider for the coil.



Tools required:

- ✓ A hammer
- ✓ A pair of pliers
- ✓ A pocket knife

Parts

- ✓ Board, at least 8 inches by 6 inches (200 by 150 mm)
- ✓ Cardboard tube, 2 inches in diameter by 6 inches long (50 mm by 150 mm)
- ✓ Insulated (enameled) copper wire, 28 gauge
- ✓ Pair of crystal earphones (which in 1959 cost 2-3 dollars U.S.)
- ✓ 3 new nails
- ✓ 4 metal thumbtacks (not plastic push pins)
- ✓ A used blade that fits a safety razor. A plain white looking blade often works better than "blue" blades (direct quote)
- ✓ Big safety pin
- ✓ Pencil with a fat lead



Make 4 little holes in the cardboard, 2 at each end, with one of the nails. Push

about 6 inches (150 mm) through hole #2, and then pull the wire up through hole 1. Wind the wire around the tube, making sure the turns lie side by side and not on top of one another. Wind for a total of 120 turns. Afterwards, measure off 6 more inches of wire at the end and cut. Push the end of the wire down through hole 3 and up through hole 4. Lay the coil on its side at the back of the board. Fasten it to the board with 2 thumbtacks, making sure the thumbtacks do not touch any of the wire.



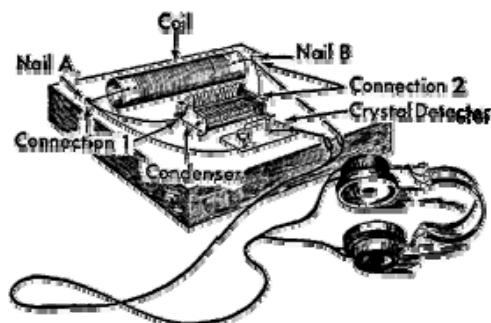
Place the razor blade in front of the coil. Lay it on the board, and gently fix it in place with two metal thumbtacks. Do not push the thumbtacks all the way in.



Sharpen the pencil until long piece of lead shows. Break off the lead, and wire it to the tip of the safety pin. Bend the head of the pin back so that it will lie flat on the board. Place the pin to the right of the razor blade. Hammer a nail through the head of the pin until it almost touches the pin.

Remove the insulation from the ends of the wires coming from the coil, as well as from the ends of all wires used to make connections. Hammer a nail just to the left of the coil. Leave it sticking up just a bit. Wrap the bare wire from the end of the coil around this nail. Take another wire and wrap a bare end around the thumbtack holding the left side of the razor. Push the tack all the way down to make contact. Take the other bare end of the same wire and wrap it around the nail.

Hammer a nail to the right of the coil and attach the coil wire as above. Use another wire to connect from this nail to one of the terminals of the earphones. Take another wire and wrap the bare end around the nail holding the safety pin. Hammer this nail in to hold the wire in place, but not so tightly that the pin cannot move a little. The other end of this wire attaches to the other free



end of the headphones.

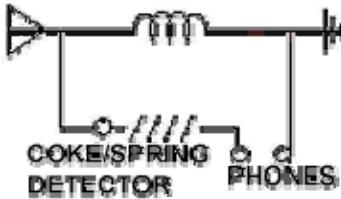
The antenna attaches to the nail that connects with the coil and razor blade (A). The ground wire attaches to the other nail, where the coil connects with the earphones (B). Hook up the headphones, and gently move the pin and pencil lead across the razor blade until you hear a broadcast. Once you hear it, don't move the pin, because you are more than likely going to lose it if you do. If there are

Cont'd...

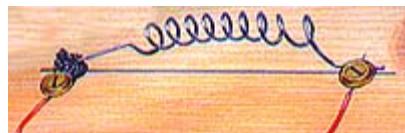
more than one stations nearby broadcasting near the same frequency, you are likely to hear overlap. To solve this, you can add a condenser. A variable type can be used, as in the illustration. It is recommended that it have 17, 19, or preferably 21 plates or use a fixed capacitor of around .002mF or build your own. If a variable condenser is used, connect the post attached to the fixed plates to the nail that connects the coil to the blade (A). Attach the condenser's other post to the other nail (B). When you find a station, turn the condenser until the signal is clearest. Please note that in the illustration a crystal and detector are substituted for the razor blade. The wire attached to the blade attaches to the crystal's post and the wire attached to the pin is attached to the detector's post. Use a safety pin instead of the cat whisker if the cat refuses to cooperate and volunteer a whisker.

POW Radio

Prisoners of war during WWII improvised from whatever bits of junk they could scrounge in order to build a radio. One type of detector used a small piece of coke, a derivative of coal often used in heating stoves. The coke used was small, about the size of a pea. Using a small board, cut a depression into it near one end to hold the coke. A screw and, if available, a screw cup, was used to hold the coke in place then a wire lead run to the receiver from this to the coil/aerial (see Set 5).

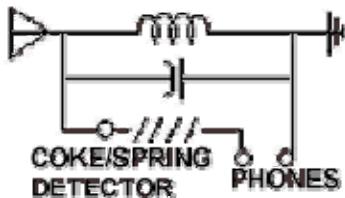


Wind a foot or so (30cm) of steel wire (guitar wire, piano wire, a handy garrote, etc.) around a pencil, long nail, or similar length, leaving about one inch (25 mm) unwound at each end. The wire should be somewhat springy. A second screw and



screw cup is set about 3 inches (75 mm) from the first. One end of the steel wire spring and a second lead attached by this screw is connected to one lead of the headphones or earphones and the steel spring wire stretched so it just rested on the coke. Since headphones weren't regular issue for foxholes, they were usually scrounged from tank crews. After much adjusting of the point of contact on the coke and the tension of the wire, strong stations would be received.

If the POW was lucky enough to find a variable capacitor, the set could possibly receive more frequencies.



A POW camp radio described

The Centre for the History of Defence Electronics Museum has posted an amazing [interview](#) with Lieutenant Colonel R. G. Wells, who built a rather elaborate set out of scrounged and improvised items while in a POW camp during WWII. (See http://histru.bournemouth.ac.uk/CHiDE/Oral_History_of_Defence_Electronics/r_g_wells.htm)

Necessity is the mother of invention, and there is no doubt that no matter the situation wo/men will find a way to communicate or at least listen in whenever they can. One thing is certain, wo/men's ingenuity is amazingly adaptable, pushing the boundaries of science and technology ever further, and that spirit lives on in modern hams. I am proud to count myself among their number. Besides, I certainly do not want to miss any of the fun and excitement that is the hallmark of amateur radio.

*73 as always...
Jackie Cornwell ACØCA*

PPRAA BOARD MEETING MINUTES MAY 15, 2007



Attendees: Mike KØMLA, Susan KCØSYA, Jim ABØUK, Mike WV7T and Rhoda, Christopher NC6T, and Dan ACØCC

President Mike KØMLA called the meeting to order at 7:04 PM at his home. The April Board Meeting minutes approved as printed in the Zero Beat. (Motioned/seconded by Susan KCØSYA/Mike WV7T)

Reports

Treasurer's Report – Dan ACØCC Treasurer: Beginning balance \$8,411.42, income \$875.58, expenses \$176.00, net income \$699.58, ending balance \$9,111.00 as of 5/08/07.

Unfinished Business:

Megafest – Rescheduled planning meeting this Sunday 5/20/07 2-3pm at the police station on Tutt Blvd. Total of 14 tables rented so far. Discussed items will be covered at the planning meeting this weekend.

Field Day – Setup on Friday afternoon, food arrangements being worked on. Still looking for more volunteers for various duties. A full update on status and needs will go out on the reflector very soon.

Colorado QSO Party – everything is running along smoothly, no new updates.

Membership Committee – need to get the introductory letter sent out to prospective hams.

Su, KCØPRN board position vacant – Dave, NØEOP has volunteered to take over Su's board position. Will vote at next club meeting. Any other nominees welcome.

New Business:

Next year's board – Going to ask Doug N7LEM to be the chairperson for an election committee.

Club Picnic Chairperson – Still need a chairperson to do the planning for this event.

Around the Table:

Mike WV7T – 2 yr hamtest online subscription, request club to pay for \$50 renewal for use at tech classes, will email company and ask if possible to use program for club purposes (rather than an individual) and get back to us.

Dan ACØCC – Thursday night net – getting the word out for the time and repeater being used.

Jim ABØUK – During the Thursday night net, the 3.5-minute timer still hasn't been removed from the repeater and during the ARRL news ended up with 2-3 minutes of dead air, and still having the paging problem. Mike KØMLA will make GGARC aware to take care of the problems ASAP. Rocky Mountain Star Stare planning an event mid-June in an area in the mountains that does not have cell phone service. Wondering if ham radios would work in the area to provide emergency communication if needed. Jim will try to get up there and check it out.

Christopher NC6T – got new Yaesu brochures in, will bring them to Megafest.

Mike WV7T – voiced appreciation for what everyone on the board does for the club, all their hard work, and asked everyone to consider running for a position again next year.

Ø-Beat submission deadline is May 25, 2007.

The meeting adjourned at 8:28 PM.

Next PPRAA Board meeting: June 11, 2007 at the Stetson Hills Police Station on Tutt; directions available on PPRAA website.

Submitted by:
Susan Allison KCØSYA
PPRAA Secretary

PPRAA CLUB MEETING MINUTES
MAY 9, 2007



President Mike Allison KØMLA called the meeting to order at 7:09 PM in the El Paso County Health Department Auditorium, followed by introductions around the room.

Treasurer's Report: Beginning balance \$8,411.42, income \$875.58, expenses \$176.00, net income \$699.58, ending balance \$9,111.00 as of 5/08/07.

Minutes: April minutes approved as printed. (Motioned/seconded by Susan KCØSYA, Mike NØMUD)

Committee Reports:

Field Day – Mike WV7T requested \$200 be approved for Field Day expenses (food, etc.). Motioned and seconded that we approve the funds by Mike KCØSYA, Jim ABØUK. Approved by membership in attendance. Event will be held at Tri-Lakes Fire Station #1, in an indoor conference room. There will be family events like treasure hunting (including Susan B. Anthony dollars), croquet, horseshoes, etc. There is a huge field for antennas and seeking approval to use adjoining closed bowling alley's parking lot for attendee parking. Sideband, digital and GOTA are covered. Need someone to handle public relations and many other volunteers for various positions and jobs throughout field day. Contact Mike WV7T if able to help out, even if just for an hour or two.

Swapfest – Next planning meeting this weekend on Sunday 5/13, 2-3 pm, at the Stetson Hills Police Station on Tutt Blvd. Everything seems to be running smoothly in the planning, but still need volunteers for various positions during the event.

Unfinished Business:

Board Position – Need someone to fill Su KCØPRN's position for remainder of her term. Dave NØEOP is willing to do so, but will be gone for May and June. We'll vote at the June club meeting and anyone else interested in filling position may run for election.

Colorado QSO Party – Jim ABØUK - Gave an overview of what a QSO party is and how it works; also an update on current status of the upcoming event.

Contest Awards – Quarterly club contest awards given out.

Program – Contesting, Jim AØ0UK gave a thorough presentation on how contesting works.

Next Club Meeting: May 9, 2007 at 7:00pm.

Next Board Meeting: 7 PM on May 15, 2007 at the home of Mike KØMLA.

Meeting adjourned at 9:05 PM.

Submitted by:
Susan Allison KCØSYA
PPRAA Secretary

**Jess Miley
KØTAA**

719 W. 7th, Florence, CO 81226
Amateur & Hobby Radio Products.
We Trade.

Excellent Tech @ \$35 per hour
Commercial rates higher / 719-784-3040

Please call before you drive.

PPRAA PRESIDENT'S CORNER



Greetings,

This president's message will be fairly short, as I was finishing a take-home final for a class I'm taking from the University of Idaho and I need to send this to Jackie ACØCA. The final was five problems that took me 15+ hours and 12 pages. We'll see what kind of mood I'm in when I get the grade.

I am excited about this summer and all the upcoming Ham Radio events. This includes the Swapfest, Field Day, the Colorado QSO party and various other QSO parties and Special Events. I want to encourage everyone to get involved and participate in these events.

Field Day is very special to me as it was the GOTA station at Field Day a few years ago that finally got me to study the code and upgrade my license to get HF privileges. The Swapfest is on track and several door prizes, as well as the raffle prizes, will find new homes during the day. Could it be you?

The Colorado QSO party planning team is doing a great job and it looks like over half the counties in Colorado are already covered. I am looking forward to being on the other end of a pileup for once!

I hope everyone has a great and safe summer. Take the time to support the PPRAA during all our scheduled events. For more information about these events or the PPRAA, please visit <http://www.ppraa.org>.

73,

*Mike, KØMLA
PPRAA President*

PRESIDENT:

Mike Allison KØMLA
KØMLA@arrl.net / 590-4812

VICE PRESIDENT:

Doug Nielsen N7LEM
N7LEM@usa.net / 282-8554

SECRETARY:

Susan Allison KC0SYA
susan@allisonfam.name / 590-4812

TREASURER:

Daniel R. Beals ACØCC
ACØCC@arrl.net / 597-9947

Ø-BEAT EDITOR:

Jackie Cornwell ACØCA
ACØCA@arrl.net / 632-8254

DIRECTOR/PAST PRESIDENT:

Christopher Taylor NC6T
NC6T@arrl.net / 260-8081

DIRECTOR:

Mike Anderson WV7T
WV7T@arrl.net / 229-8610

DIRECTOR:

Position to be filled

DIRECTOR:

Paul Moraine NØPWM
pmoraine@msn.com / 638-0273

DIRECTOR:

Jim Harris, ABØUK
ABØUK@msn.com / 641-8477

**Pikes Peak Radio Amateur Association, Inc.
P.O. Box 16521
Colorado Springs, CO 80935-6521 USA**

Standard Mail

To: